UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,968	04/12/2004	Hsin-Chang Wu	ENEP0001USA	3103

			EXAMINER
27765	7590	09/21/2006	UNELUS, ERNEST

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ART UNIT	PAPER NUMBER
2181	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/821,968	WU ET AL.
	Examiner	Art Unit	
	Ernest Unelus	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _12 April 2004_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-7_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-7_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _12 April 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

FRITZ FLEMING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100
9/1D/2006

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

RESPONSE TO AMENDMENT

A.   Claims rejected based on 35 U.S.C. 112

The 35 U.S.C. 112 rejection has been removed due to correction.

B.   Claim rejections based on prior art

Applicant's arguments filed 07/28/2006 have been fully considered but they are not persuasive.

As per claim 1, the applicant amended claim 1 by including request after "incoming" and before "cycle"

The applicant responded by state "The instant invention provides a keyboard controller that includes a command filtering circuitry to parse incoming signals and to distribute them to either a hardware circuitry or to a micro-controller unit, whichever is applicable for the particular kind of incoming signal (Paragraph [0011I] as published). The command filtering circuitry comprises a plurality of switches, with each kind of data and command corresponding to separate switches (Paragraphs [0013], [0014]). By judicial use of the switches, hardware (circuitry) routing of the incoming signal is performed. By routing data and standard commands to the pure hardware circuitry and routing only commands requiring additional operations to the micro-controller for processing (paragraph [00 1 4]). Operational speed is increased, costs are reduced by requiring less complicated firmware, and the operational load of the micro-controller is reduced, which in turn enables either use of a less powerful (and cheaper) micro-

controller, or enables use of freed micro-controller duty cycles to be used for other tasks

possibly not related to command/data processing."

This paragraph is a statement of the invention and what is being claim.

The applicant further responded by state "On the other hand, Falik discloses,

"Commands from a host processor (e.g., as discussed above in the Background, an 80286

or 80386 microprocessor) are handled by a control processor 101executing firmware (or

software) stored in a memory 102" (Col.3, lines 1-5). "FIG. 2 is a flowchart illustrating

the process 200 of the firmware 102, in accordance with a preferred embodiment of the

invention, for handling commands from the host processor. In particular, the FORCE-20

(also called "GA20") and RESET commands are handled by the controller processor 101

before any other commands, thus reducing the latency and overhead in handling these

commands." (Col.3, lines 39-45)".

Based on the amended claims, the examiner, now, selected the: a computer host (host

interface 107 in fig. 1) interface receiving multiple signals (see fig. 1); a command

filtering circuitry **(firmware102 in fig. 1)** coupled between the computer host interface

and a pure hardware circuitry **(hardware circuitry 105 in fig. 1)** and also coupled

between the computer host interface and a micro-controller unit **(microcontroller 101 in**

fig. 1) (figures 1 and 2 and col. 3, lines 4-7 discloses the command filtering circuitry

being coupled and between the computer host interface and the microcontroller.

The command filtering circuitry is also being coupled and between the host

interface and the pure hardware circuitry computer. If someone moves from point

A (the host interface), point B (the command filter circuitry 102), and to point C

(the microcontroller 101), technically, point B is between point A and C), the

command filtering circuitry parsing the multiple signals and transmitting data and

standard commands to the pure hardware circuitry and transmitting predetermined

commands requiring more operations than standard commands o the micro-controller unit

(Col.3, lines 39-45 discloses "'FIG. 2 is a flowchart illustrating the process 200 of the

firmware 102, in accordance with a preferred embodiment of the invention, for

handling commands from the host processor. In particular, the FORCE-20 (also

called "GA20") and RESET commands are handled by the controller processor 101

before any other commands, thus reducing the latency and overhead in handling

these commands". FORCE-20 (also called "GA20") and RESET commands are the

stand command as also agreed by the applicant. See also col. 3, lines 47-65); and an

interface circuitry coupled to the pure hardware circuitry and to the micro-controller unit

(interface circuitry 103 is shown to be connected to the pure hardware circuitry and

also connected to the microcontroller through the pure hardware circuitry).

I. INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

1.   The applicant's oath/declaration has been reviewed by the examiner and is found

to conform to the requirements prescribed in **37 C.F.R. 1.63.**

II. INFORMATION CONCERNING DRAWINGS

Drawings

2.   The applicant's drawings submitted are acceptable for examination purposes.

III. REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   **Claims 1-2, and 4-7** are rejected under 35 U.S.C. 102(b) as being anticipated by

Falik et al. (US pat. 5,964,853).

5.   As per **claim 1**, Falik discloses "a keyboard controller **(controller 100, col. 1,**

line 17), comprising; a computer host **(host interface 107 in fig. 1)** interface receiving

multiple signals **(see fig. 1)**; a command filtering circuitry **(firmware102 in fig. 1)**

coupled between the computer host interface and a pure hardware circuitry **(hardware**

circuitry 105 in fig. 1) and also coupled between the computer host interface and a

micro-controller unit **(microcontroller 101 in fig. 1) (figures 1 and 2 and col. 3, lines 4-**

7 discloses the command filtering circuitry being coupled and between the computer

host interface and the microcontroller. The command filtering circuitry is also being

coupled and between the host interface and the pure hardware circuitry computer.

If someone moves from point A (the host interface), point B (the command filter

circuitry 102), and to point C (the microcontroller 101), technically, point B is

between point A and C), the command filtering circuitry parsing the multiple signals

and transmitting data and standard commands to the pure hardware circuitry and

transmitting predetermined commands requiring more operations than standard

commands o the micro-controller unit (Col.3, lines 39-45 discloses "'FIG. 2 is a flowchart illustrating the process 200 of the firmware 102, in accordance with a preferred embodiment of the invention, for handling commands from the host processor. In particular, the FORCE-20 (also called "GA20") and RESET commands are handled by the controller processor 101 before any other commands, thus reducing the latency and overhead in handling these commands". FORCE-20 (also called "GA20") and RESET commands are the stand command as also agreed by the applicant. See also col. 3, lines 47-65); and an interface circuitry coupled to the pure hardware circuitry and to the micro-controller unit (interface circuitry 103 is shown to be connected to the pure hardware circuitry and also connected to the microcontroller through the pure hardware circuitry).

6.   As per **claim 2**, Falik discloses "the keyboard controller according to claim 1"[see claim one above], wherein the multiple signals of the said keyboard controller can be multiple data or commands (see fig. 2 and col. 3, lines 51 and 52, which discloses multiple data or commands).

7.   As per **claim 4**, Falik discloses wherein the command filtering circuitry of the keyboard controller comprises multiple controlled switches, each kind of data or command corresponding to one of the multiple switches (col. 3, lines 52-54 discloses that "If the message byte is a command byte, then the process continues at step 206 (first switch), where it is determined if the command byte is D1 or FF (second switch) "a status of each switch determining whether the

corresponding kind of data or command is transmitted to the pure hardware circuitry or to

the microcontroller **(fig. 2 discloses the command filter circuitry forwarding each**

kind of data or command to the microcontroller).

8.　As per **claim 5,** Falik discloses wherein the micro-controller unit of the said

keyboard controller can be a firmware **(Falik discloses firmware 102 in fig. 1, which**

is also known as a micro-controller as disclose by the applicant and prior art.)

9.　As per **claim 6,** Falik discloses a method for controlling a keyboard controller

(100) comprising the steps of: receiving signals of an assigned PS/2 controller from

a computer host by a host interface **(107)** of the said keyboard controller; **(col. 1,**

lines 40-59 discloses that the PS/2 protocol has a controller to re-initiated dada

from the beginning), transferring the signals to a command filtering circuitry

(firmware102 in fig. 1) of the keyboard controller **(col. 1, lines 40-59 discloses that the**

PS/2 protocol has a controller to re-initiated dada from the beginning);

the command filtering circuitry determined whether the signal comprises data or a

standard command or a predetermined command requiring additional operations; **(see**

step 204 in fig. 2 and Col.3, lines 39-45, which discloses "'FIG. 2 is a flowchart

illustrating the process 200 of the firmware 102, in accordance with a preferred

embodiment of the invention, for handling commands from the host processor. In

particular, the FORCE-20 (also called "GA20") and RESET commands are

handled by the controller processor 101 before any other commands, thus reducing

the latency and overhead in handling these commands". FORCE-20 (also called

"GA20") and RESET commands are the stand command as also agreed by the

applicant. See also col. 3, lines 47-65), if the command filtering circuitry determines that

the signal comprises data or a standard command **(see step 204 in fig. 2),** transmitting the

signal to the pure hardware circuitry for processing **(see fig. 2);** if the command filtering

circuitry determines that the signal comprises the predetermined command, transmitting

the signal to the micro controller unit for processing **(see fig. 1, which discloses the**

command filtering circuitry forwarding multiple data or command to the

microcontroller), after the pure hardware circuitry <u>or</u> the micro controller unit processes

the signal, transmitting the processed signal to an interface circuitry **(see fig. 2)** and the

interface circuitry transmitting the processed signal to the assigned PS/2 controller

according to a command of the computer host **(col. 1, lines 40-59 discloses that the PS/2**

protocol has a controller to re-initiated dada from the beginning).

10.   As per **claim 7,** Falik discloses a method for controlling a keyboard controller

(100) comprising the steps of: receiving a command from a host computer by a PS/2

controller to return a signal to the keyboard controller **(col. 1, lines 40-59 discloses that**

the PS/2 protocol has a controller to re-initiated dada from the beginning. Fig. 2 also

discloses a transmit ion of signal to the keyboard controller); if the signal to be

returned is a standard command the PS/2 controller transmitting the signal to be return to

a pure hardware circuitry **(see fig.1) (see fig. 2, which discloses the standard**

command), if the signal to be returned is a predetermined command requiring additional

operations, the PS/2 controller transmitting the signal to be return to a microcontroller

unit **(Col.3, lines 39-45 discloses "FIG. 2 is a flowchart illustrating the process 200 of**

the firmware 102, in accordance with a preferred embodiment of the invention, for

handling commands from the host processor. In particular, the FORCE-20 (also called "GA20") and RESET commands are handled by the controller processor 101 before any other commands, thus reducing the latency and overhead in handling these commands". FORCE-20 (also called "GA20") and RESET commands are the stand command as also agreed by the applicant. See also col. 3, lines 47-65); transmitting the signal to be returned from the pure hardware circuitry or from the microcontroller unit to a command filtering circuitry for processing (fig. 1 discloses signal to be returned from the pure hardware circuitry); and transmitting the processed signal to be returned from the command filtering circuitry to the host computer via host interface (see fig. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11.   **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Falik et al. (US pat. 5,964,853) in view of Thayer et al. (us pat. 5,381,530).

12. As per **claim 3**, Falik discloses "a keyboard controller according to claim 1," [See **rejection to claim 1 above**], including an interface circuitry, but fails to disclose expressly "wherein the interface circuitry of the said keyboard controller can be 64h or 60h of input/output ports.

Thayer discloses keyboard controller having a 64h or 60h of input/output ports (col. 7, lines 12-25).

Falik and Thayer are analogous art because they are from the same field of endeavor of keyboard controller for processing commands/data.

In view of such teaching, at the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Falik's keyboard controller, which include the interface circuitry with Thayer's keyboard controller to include a 64h or 60h of input/output ports to process signals.

The motivation for doing so would have been because Thayer teaches that **separating the incoming signals reduce latency in handling command/data, as disclosed (see col. 5, lines 23 and 24).**

Therefore, it would have been obvious to modify Falik with Thayer for the benefit of creating a keyboard controller used to reduce latency in handling command/data to obtain the invention as specified in claim 3.

IV. <u>RELEVANT ART CITED BY THE EXAMINER</u>

13.   The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See MPEP 707.05(c).

14.   The following references teach a keyboard controller used to process command/data.

<u>U.S. PATENT NUMBER</u>

US 6,067,589
US 5,781,795

Conclusion

a. <u>STATUS OF CLAIMS IN THE APPLICATION</u>

15.   The following is a summary of the treatment and status of all claims in the

application as recommended by M.P.E.P. 707.07(i):

a(1) <u>CLAIMS REJECTED IN THE APPLICATION</u>

16.   Per the instant office action, claims 1-7 have received a final action on the merits.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of

time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than

SIX MONTHS from the mailing date of this final action.

b. <u>DIRECTION OF FUTURE CORRESPONDENCES</u>

17.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ernest Unelus whose telephone number is (571) 272-

8596. The examiner can normally be reached on Monday to Friday 9:00 AM to 5:00 PM.

IMPORTANT NOTE

18.   If attempts to reach the above noted Examiner by telephone is unsuccessful, the

Examiner's supervisor, Mr. Fritz M. Fleming, can be reached at the following telephone

number: Area Code (571) 272-4145.

The fax phone number for the organization where this application or proceeding is

assigned is 571-273-8300. Information regarding the status of an application may be

obtained from the Patent Application Information Retrieval (PAIR) system. Status

information for published applications may be obtained from either Private PAIR or

Public PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR system,

contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 18, 2006   Ernest Unelus
                                                    Examiner
                                                    Art Unit 2181

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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100